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ABSTRACT

In an effort to aid students with math skills deficiencies, while at the same time circumventing faculty and public resistance to the inclusion of remedial courses in four-year college curricula, George Mason University (GMU) entered into an articulation agreement with Northern Virginia Community College (NVCC), whereby NVCC offers sections of its developmental math course on the GMU campus. Planning the agreement involved a coordinated effort among administrators, faculty, and students at both institutions. It was decided that the sections to be offered would utilize, as is, the individualized, programmed methods in use at NVCC. In addition to minimizing curricular revisions, this decision allowed for the continuous registration of university students who initially attempted a college-level math course and then encountered difficulty. Other planning considerations included: synchronizing NVCC's quarter system with GMU's semester calendar; facilitating in-class registration of students; and achieving agreement as to the interpretation of NVCC's grading system for university prerequisites purposes. NVCC retained complete control of the instructional facets of the course and selected its most experienced faculty to teach the first sections of the course to assure its initial success. Although the agreement has only been in effect since Fall 1980, it has proved a valuable tool for enhancing service to GMU students and is to be expanded with a testing and placement procedure. (JP)

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ARTICULATION BETWEEN TWO AND FOUR-YEAR INSTITUTIONS

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A National Conference on
Remedial and Developmental Mathematics in College:
Issues and Innovations

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The past ten years have seen a dramatic increase in the number of college students needing remedial work in mathematics. This situation is nothing new to community colleges, where open admission has been generally standard practice for years, but it is a relatively new problem to many four-year insitutioons which have been accustomed to fairly selective admissions. In an attempt to recruit or retain students whose basic math skills are not what they should be, more and more colleges and universities have been initiating some type of remedial math instruction. However, such action often encounters strong resistance from faculty who feel that remedial work is out of place in a four-year institution. More importantly, taxpayers and legislators are beginning to object also, on the grounds that four-year institutions should not be given money to support instruction which should have been accomplished before the student applied for college. This movement has grown to a point where bills have been introduced or passed in a number of state legislatures to specifically prohibit such instruction in four-year state-supported institutions.

Now I am not here to argue the pros and cons of accepting students with a math deficiency. What I would like to do is to describe one way of providing the needed instruction to the students, while avoiding allegations that the four-year college is doing something it shouldn't be doing. This particular solution consists of close and active articulation between a four-year institution and a community college, in a manner which benefits both institutions and the students.

In this specific case, a need existed at George Mason University, a university located within five minutes of the Annandale Campus of Northern Virginia Community College. Basically, the university realized that many accepted students were math-qualified according to their high school records,

but actually were not capable of successfully dealing with math courses at the university.

In response to this need, we initiated the first inter-institutional articulation program in the Fall quarter of 1980. Fundamentally, this consisted of placing Northern Virginia Community College Developmental Mathematics sections on campus at George Mason University. In initiating the articulation, there had to be interaction at the grass root levels between department chairmen on both campuses, the university and the community college. Most important, there had to be agreement upon the philosophical orientation towards our common goals, that is, attempting to alleviate the anxiety many students encounter with mathematics, and assisting them to take college level mathematics courses with a reasonable expectation of success.

In answering George Mason's request for assistance, we emphasized the need for detailed coordination in planning to meet the specific needs of the university. The coordination had to be thorough at all administrative levels, including such people as admissions coordinators, registrars, provost, and deans, in addition to continuous interchange between the faculty and staff directly involved in bringing the whole project to fruition. We also included students, obtaining comments about how they thought this type of project would assist them as they entered or transferred to the university. We were particularly careful to define areas of responsibility and to insure that all people at all levels knew their specific responsibilities and were willing to make a commitment to support the project. Many memos and meetings were required to achieve the common goal of assisting the students at the university with their deficiencies in math.

In formulating the specific curriculum to be placed at the university, we gave great stress to being totally flexible to meet the student needs. Thus, we elected to use our individualized, programmed instruction methods

which were already functioning excellently at the community college. This decision was made for several reasons. For one thing, fewer curriculum revisions would be required to meet the university needs. Basically, we could simply transfer our entire learning system and management system from the community college to the university. For another, this method of instruction allowed for continuous registration for those university students who initially attempted a college level math course and encountered difficulty; that is, they would be able to drop directly from the university math course into our remedial math course at any time during the quarter. Furthermore, the testing package in the program provides for accurate placement, allowing the students to test through all the basic concepts until they encounter difficulty, whether it be in arithmetic or later in algebra.

Thus, the students are not required to relearn any concepts they already possess, but simply to learn those concepts with which they have difficulty, which reduces instructional time to the essentials actually needed. Finally, the most fundamental reason is that our programmed instruction package has been in use over the past several years and has been very successful in helping the students to achieve their goals in mathematics. We knew we had a reliable, valid system.

When we actually implemented this learning system at the university, there were several stumbling blocks encountered but surmounted. For example, the community college was on the quarter system, whereas the university was on the semester system. Thus, there had to be several meetings to work out the synchronization of the calendars of both schools without disrupting the existent university or community college schedules. The registration process was structured on a reservation basis, whereby the students filled out reservation forms prior to the commencement of the course. On the second

night of classes, several staff members from our registrar's office at the community college went to our developmental classes at the university and actually performed the registration in the classroom.

This obviously necessitated much cooperation and coordination. In this connection, we found early on that there had to be defined avenues for solving various unanticipated administrative problems that could occur throughout the course, such as implementing our system for continuous registration. In addition, student performance in our courses is indicated by S (satisfactory), R (re-enroll), or R (unsatisfactory), as opposed to the standard grading system at the university. Thus, there had to be several meetings to explain totally and achieve agreement as to the interpretation of our grading system for university prerequisite purposes. It might also be added that there had to be significant coordination regarding the various payment systems, since our tuition is at a different rate than that of the university.

One area in which we did not have problems was in the instruction itself, and for good reasons. It must be understood that all instructional facets of this course at the university were under the total control of the community college, with the exception of the actual room and furniture, which were provided by the university. In other words, it was our course, offered on their campus. This principle is absolutely fundamental to the success of such an articulation program.

In selecting the faculty, however, we selected the most experienced faculty from the community college to teach the first sections of the course at the university. We wanted to make sure that the first effort was a successful one, that all concerned knew that we were totally committed to that effort, and that the students' and university's first experience would be a good one.

In evaluating the success of our present inter-institutional articulation project with George Mason University, the reactions of both institutions have been most positive. Faculty and staff at the university have been pleased with the flexibility of our programmed learning system which meets many of the individual needs of their students. Since we only commenced this project as of the Fall quarter, 1980, we have not, as of yet, had an opportunity to gain any substantial statistics indicating the follow-up success of our developmental math at the university, especially in relation to those students who do not take the remedial math courses at the university.

We are also very delighted that the university requested that we formulate an entry-level test based on their stated objectives for one of their college math sequences having the highest enrollment. This test should help them to better discriminate which students should be taking the developmental math courses offered at the university, rather than allowing the student to enroll, only to discover his inability to cope with the requirements of the university math course.

The major benefit that has resulted from the implementation of this inter-institutional articulation has been the service to the student. No longer are George Mason University students required to come to Northern Virginia Community College to remediate their mathematics. Now, when students are accepted at the university and discover that they cannot cope with a particular college math course, they simply drop into the remedial math program which has been provided for them right on the campus of the university.

Thus, we are hoping to achieve our goal of attemtping to maximize our service to the student and provide him the least amount of difficulty in

eliminating mathematics deficiencies. We plan to continue our inter-institutional articulation with remedial mathematics; and quite possibly the program will expand to several more sections in the 1981 Fall quarter, when the university starts requiring students to take the entry-level mathematics proficiency test prior to registration.

In essence, we think the university acted wisely in turning to us at the community college to assist them in meeting their specific remedial mathematics needs, rather than re-inventing the wheel at their university to achieve the goals they desired. To date, the entire project has been a pleasant, worthwhile experience, and all administrators, faculty, and staff involved have responded most favorably to the project. Perhaps other colleges and universities having problems with remediation of mathematics for their entering students could also benefit from a similar inter-institutional articulation program. From our experience, it's well worth considering.